

USSR

SHEFTEL', I., et al., Radio, No 3, March 1971, pp 55-56, 58

on use of their temperature dependence of resistance and volt-ampere characteristics and that they can operate in DC or AC circuits up to 400 hertz. Use of posistors for therial compensation in transistorized equipment is especially prospective, and the mechanism of their effectiveness here is described.

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USSR

UDC 621.365.82

FUGNIN, V. I., SEL'DIMIROV, I. M., SENYUTOVICH, E. G., and TEKUCHEV, A. N.

"A Study of the Effect of Xenon on the Size of the Population Inversion of Oscillatory Levels of the CO₂ Molecule in a Discharge in a Mixture of CO₂ + He + Xe"

Tr. Ryazan. Radiotekhn, in-ta (Proceedings of the Ryazan' Radiotechnical Institute), No 37, 1972, pp 69-77 RZh-Fizika, No 9, Sep 73, Abstract No 9D752

Translation: The effect of adding Xe on the amplification of a CO₂ gas discharge laser was studied. The degree of amplification was recorded as a function of the quantity of Xe and the electrical characteristics of the discharge. It is suggested that the effect of Xe on the population inversion occurs through the change of the electrical characteristics of the discharge: the temperatures and concentrations of electrons. Eight bibliographic citations.
Yu. M.

1/1

USSR

UDC 576.851.555.098.31:577.156

TEL'BUKH, V. P., BLAGOVESHCHENSKIY, V. A., ISPOLATOVSKAYA, M.V., and BORISHPOLETS, Z. I., Institute of Epidemiology and Microbiology ineni Gamaleya, Academy of Medical Sciences USSR

"Some Characteristics of Proteolytic Systems of *Cl. perfringens* Type A"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Imunobiologii, No 12, 1971, pp 93-97

Abstract: The relationship between the proteolytic and lecithinase activities of *C. perfringens* type A cells was studied during the first hours of growth on a casein-mushroom medium containing B complex vitamins. The level of proteolytic and lecithinase activities was high in the initial growth stages (2-hour culture), but after 6 hours no lecithinase activity could be detected. In another series of experiments, lecithinase was destroyed by the proteolytic enzymes present in resting cells of a 2-hour culture at both acid and weakly alkaline pH values. Lecithinase activity decreased even when incubated in an acid medium with endoproteinase isolated from cells of 2- and 6-hour cultures. The high proteolytic activity at both acid and alkaline pH suggests the existence of two endoproteinas or one proteinase with a wide spectrum of action. Proteinase was resistant to trypsin as an inhibitor. Proteinase treated with urea did not lose its activity when heated (to 80°C for 15 min), whereas untreated proteinase became half as active after heating.

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1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF THE ION BOMBARDMENT METHOD TO DOPE GERMANIUM --U-
AUTHOR--(04)-VOLODKO, V.G., ZORIN, YE.I., PAVLOV, P.V., TELEBAUM, D.I.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 812-13
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, MATERIALS
TOPIC TAGS--ION BOMBARDMENT, GERMANIUM, DOPED ALLOY, MICRON, ION, VOLT
AMPERE CHARACTERISTIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0930 STEP NO--UR/0449/70/004/004/0812/0813
CIRC ACCESSION NO--AP0121532
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121532

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SURFACE RESISTIVITY OF THE INVERSION LAYER IN P TYPE GE BOMBARDED AT 50 KEV WITH P IONS AND ANNEALED 30 MIN AT 200-800DEGREES WAS STUDIED. THE ION BEAM WAS ORIENTED NORMAL TO THE (111) PLANE, AND THE ION DOSE WAS 0.1-1000 MICROCOULOMBS-CM PRIME2. THE SURFACE RESISTIVITY DEPENDS MONOTONICALLY ON ANNEALING TEMP. THE INVERSION N TYPE LAYER IS FORMED AFTER ANNEALING AT GREATER THAN 450 AND 350DEGREES FOR ION DOSES OF 10-100 AND 1000 MICROCOULOMBS-CM PRIME2, RESP. NO INVERSION LAYER WAS OBSD. FOR DOSES SMALLER THAN 1 MICROCOULOMB-CM PRIME2. CURRENT VOLTAGE CHARACTERISTICS OF P,N JUNCTIONS FORMED IN N TYPE GE BY BOMBARDMENT AT 50 KEV WITH B IONS AND ANNEALING AT 400DEGREES EXHIBIT A RECTIFICATION COEFF. OF SIMILAR TO 10 PRIME4 AT 1 V. FACILITY: GOR'K. ISSLED. FIZ.-TEKH. INST., GORKI, USSR.

UNCLASSIFIED

Receivers and Transmitters

USSR

UDC: 621.391.22:621.378.325

AFINOGENOV, V. M., AYTKHOZHIN, S. A., STRAKHOV, V. A., TELEGIN, A. A., and TRIFONOV, V. I.

"Highly Sensitive Submillimeter Receiver Using n-GaAs"

Gor'kiy, Izvestiya VUZ--Radiofizika, No 10, 1972, pp 1572-1579

Abstract: There is, at the present time, a demand for receivers in the short wave part of the submillimeter band with minimum inertia. Receivers using pure gallium arsenide with electron conductivity are especially promising in view of the qualities they possess, particularly the photoconductive effects of n-type GaAs. These characteristics of GaAs are investigated in the present paper for the purpose of designing this type of receiver. Subjects of the investigation were monocrystalline epitaxial films grown on substrates of semi-insulating n-GaAs, with arsenic and gallium chlorides used as the initial materials. A table of the parameters of some of the films investigated is given and other characteristics explored. The block diagram of a receiver using the epitaxial n-GaAs is proposed and analyzed. The authors thank A. M. Vystavkin, Yu. V. Gulyayev, V. F. Dvoryankin, V. V. Migulin, and A. V. Sokolov

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AFINOGENOV, V. M., et al, Izvestiya VUZ--Radiofizika, No 10, 1972,
pp 1572-1579

for their devotion to the work, V. N. Listvin for his useful comments, and N. G. Yaremenko for helping investigate the film parameters.

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USSR

UDC: 621.315.592

KEMARSKIY, V. A., KMITA, A. M., and TELEGIN, A. A., Institute of Radio Engineering and Electronics, Moscow

"Acoustic-Electrical Domains in Epitaxial GaAs Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1483-1488

Abstract: This paper, which was presented before the All-Union Conference on semiconductor alloys $Al_{1-x}B_xV$ and $Al_{1-x}B_xVC_2V$, in Ashkhabad, 1971, undertakes a more detailed investigation than hitherto offered of current oscillations in epitaxial GaAs films. The specimen films were grown by the method of gas-transported reactions on substrates of semi-insulating GaAs oriented along the (110) plane, and were cut into rectangular plates measuring 10X5X 1.8 mm. Detailed accounts of the specimen preparation and the experimental method are given. Current oscillations were observed in the temperature interval of 4.2 to 120° K, although increases in the 4.2 to 60° K range had little effect on the shape of the oscillations or the threshold field of their initiation. Above 60° K, the depth of current modulation gradually dropped until 1/2

USSR

KEMARSKIY, V. A., et al, Fizika i tekhnika poluprovodnikova, No 8, 1972, pp 1483-1488

complete disappearance of the oscillations at 120° K. These specimens were used to investigate the acoustic-electrical effect generated by passage of an acoustical current through the region behind the anode. Plots of this effect as well as of the specimen characteristics are reproduced. The authors express their gratitude to Yu. V. Gulyayev for his comments and to V. V. Proklov for a useful discussion.

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TELEGIN A.A.

SPRS 59208
6-73

VII-7. EFFECT OF THE DEFECT STRUCTURE OF THE SUBSTRATES ON THE ELECTRICAL PROPERTIES OF AUTOEPITAXIAL GaAs

Article by G. F. Kuznetsov, A. A. Telgin, B. I. Khailo, L. S. Telkina, Institute of Radio Engineering and Electronics of the USSR Academy of Sciences, Moscow; Novosibirsk, III Simposium na Protyazhku Bozha i Sinteza Poluprovodnikov, Kholm Khtalalov i Plank, Russia, 1-17 June, 1972, p 93

Substrates with an orientation of (001) were manufactured from single crystal of semiconducting GaAs alloy with Cr. The defect structure of the substrate was studied by the boron x-ray topographic method. The epitaxial monocrystalline films of GaAs were grown by the open chloride method. In one experiment the films were grown on substrates from 2-3 monocrystalline bars with a different defect structure. The mobility of the carriers was measured at 300° K and 77° K.

In the investigated crystals the dislocations form interferences by which the crystal is divided into regions of the cellular type. The cells mentioned in the various bars vary from 50 to 900 microns. The cells mentioned mobility (to $1 \cdot 10^{12}$ cm²/v-sec at 77° K) can be obtained in GaAs films grown on substrates with large cellular structure (hundreds of microns). On the substrate with small cell dimensions (tens of microns), GaAs films with less mobility are systematically obtained under the same conditions.

TELEGIN, A.A.

SPRS 59068

6-73

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VI-7a. GROWTH KINETICS OF EPITAXIAL LAYERS OF GALS IN THE $\text{AsCl}_3 + \text{H}_2 + \text{Ga}$ SYSTEM

Article by V. P. Dvoryanin, A. A. Telegin, Institute of Radio Engineering and Electronics of the USSR Academy of Science, Moscow; Novosibirsk, III Sib. Nauchno. Ts. 17-17 June, 1972, p. 94.

A brief survey of papers on the growth kinetics of epitaxial layers of Gals in the $\text{AsCl}_3 + \text{H}_2 + \text{Ga}$ system is presented.

The formula was found for calculation of the growth rate of epitaxial layers of Gals in the $\text{AsCl}_3 + \text{H}_2 + \text{Ga}$ system using the solution of the continuity equation considering diffusion of the gas components through the boundary layer.

Agreement is observed between the experimental growth rates of the epitaxial layers of Gals and those calculated by the proposed formula.

TELEGIN, A.A.

SPK 59208
6-73

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19-2. ELECTRICAL SURFACE MICRORELIEF CAUSED BY THREE-DIMENSIONAL DEFECTS

Article by V. V. Tarasenko, I. M. Kocelyanets, A. Yu. Milyagin, V. P. Orlov and A. A. Telegin. Institute of Radioengineering and Electronics of the USSR Academy of Sciences, Moscow; Novosibirsk. [In] *Sbornik po Problemei Nizkogo i Srednego Frekvencyi, Kvantovaya i Termicheskaya Fizika*, 12-17 June, 1972, p. 821

It has been demonstrated theoretically that the surface three-dimensional defects (scratches, defects of cleavage or growth, dislocations and faceting) create the local electrical inhomogeneities, the form and magnitude of which are determined both by the configuration of the defect and the electrophysical parameters of the material. The appearance of disturbances of the periodicity of the electric field near the surface defect was caused by the following: 1) disturbance of the periodicity of the ion crystal lattice; 2) elastic deformation; 3) redistribution of the free charge carriers. A study was made of the special cases of ion crystals, metals and semiconductors. The experimental studies were made which confirmed the presence of nonuniform electric relief created by three-dimensional surface defects. The effect of the indicated defects on the initial stages of the epitaxial growth of the films and the formation of the transient layer in the case of heteroepitaxial and autoepitaxial growth are discussed.

USSR

UDC 621.315.592

DVORYANKIN, V. F., YEMEL'YANENKO, O. V., NASLEDOV, D. N., NEDKOGLU, D. D.,
TELEGIN, A. A.

"Electric Properties of n-GaAs Epitaxial Layers"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 10, October 1971, pp
1882-1887

Abstract: A study was made of the Hall effect, electrical conductivity and mobility in n-GaAs epitaxial layers in the temperature range of 2.5-295° K. The layers were obtained by the method of gas epitaxy on a seminsulating substrate made of gallium arsenide alloyed with chromium, and they had an electron concentration of $5.7 \cdot 10^{14}$ - $4.9 \cdot 10^{15}$ cm⁻³ and a current carrier mobility of 7,500-8,000 cm²/volt-sec at 295° K. The maximum mobility in the investigated layers was 104,000 cm²/volt-sec. In the n-GaAs epitaxial layers with $n > 10^{15}$ cm⁻³ at low temperatures, scattering of the neutral atoms of the admixture becomes significant. From analysis of the temperature dependence of the Hall factor, the donor concentration N_d , the acceptor concentration N_a , and the ionization energy of the small donor admixture E_d were determined. In
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DVORYANKIN, V. F., et al., Fizika i Tekhnika Poluprovodnikov, Vol 5, No 10, October 1971, pp 1882-1887

layers with a concentration of $n \sim 10^{15} \text{ cm}^{-3}$, a deep admixture level was detected with $E_{\text{deep}} \approx 0.1$ electron volts. The concentration of the admixtures giving a deep admixture level decreases with an increase in the purity of the layers. In the purest test piece ($n = 5.7 \cdot 10^{14} \text{ cm}^{-3}$) no deep level was detected. The ionization energy of small donor admixtures decreases with an increase in their concentration as $\sim 1/3$.

In order to perform a more detailed analysis, measurements of E_d in crystals with a different degree of admixture compensation are necessary. In addition, the possible dependence of E_d on temperature must be considered and studied to which variations in the number of admixture ions in the crystal and variation of the screening effect of the current carriers can lead.

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USSR

UDC 536.521.082.52

TELEGIN, A. A., ALEKHIN, V. YE.

"The Procedure for Determining the Optimal Values of the Parameters of Photoelectric Temperature Sensors"

Avtomatizatsiya Proizvodstvennykh Protssessov v Mashinostroyenii i Priborostroyenii. Mezhdedomstvennyy Respublikanskiy Sbornik
(Automation of Production Processes in Machine Building and Instrument Manufacture. Interdepartmental Republic Scientific and Technical Collection of Works), No 8, 1970, pp 124-129
(from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 12, 1970, Abstract No 12.32.606 by V. S. K.)

Translation: Analytic monitoring of the course of some technological processes may be based upon measurement of the temperature of small sectors of heated surfaces. Such temperature measurements may be accomplished by means of photoelectric temperature sensors which may be placed on equipment of any kind. The sensors permit measurement of the temperature, starting with 423-473°K, of surface sectors of various sizes from various distances and provide for simple and exact sighting. Relationships are obtained for
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TELEGIN, A. A., et al, Avtomatizatsiya Proizvodstvennykh Protse-
sov v Mashinostroyenii i Priborostroyenii. Mezhyvedomstvennyy
Respublikanskiy Sbornik, No 8, 1970, pp 124-129

calculating the flux of radiations that get onto the sensitive layers of the receiving element of the photoelectric temperature sensor. A procedure is set forth for determining the optical and geometrical parameters of the radiations that are optimal in the sense of providing for maximum sensitivity and increasing measurement accuracy and expanding the lower limit of the measured temperatures. 3 figures, 2 bibliographic entries.

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TELEGIN, A. S.

TECHNICAL TRANSLATION

PTC-MT-23-575-72

ENGLISH TITLE: Symmetrical Heating and Cooling of a Plate in a Direct Flow

FOREIGN TITLE: Simetrichnyy Nagrev i Okhlazhdeniye Plastiny v Pryanotoke

AUTHOR: A. S. Telegin, V. P. Zavarzin

SOURCE: Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3, 1970, pp 171-174.

Translated for PRC by Leo Kanner Associates

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Industrial

USSR

UDC 621.43.011:533+621.5:533

SHCHELOKOV, Ya. M., ~~TELEGIN, E. M.~~, BURGАНOV, A. A.

"Results of Tests of Industrial Models of Relaxation Vibration Combustion Chambers"

V sb. Vibrats. gorenije v nekot. model'n. ustroystvakh ((Vibration Burning in Some Model Devices--collection of works), Kazan', Kazan' University, 1970, pp 130-141 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B369)

Translation: The paper describes the results of experimental studies of four types of combustion chambers operating in the vibration combustion mode. It is pointed out that the ignition of fuel in this mode permits intensification of the combustion process. A brief survey is presented of works dealing with research on chambers of this type. Two of the chambers had separate supplies for the gas-air mixture, while the other two were equipped with premixing devices. The diameters of the chambers and their lengths were changed in the experiments. The goal of the research was to determine the regions of existence and frequencies of oscillations, and also to compare the results with computed data for the boundaries of the region and frequencies of oscillations. Natural gas was used in the ex-

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SHCHELOKOV, Ya. M. et al., Vibrats. goreniye v nekot. model'n. ustroystvakh, Kazan', Kazan' University, 1970, pp 130-141

periments. The rates of flow of air and gas were measured as well as the frequencies of oscillations. The effect which the length of the flame run has on the dimensions of the region of existence is determined in terms of the volumetric flow rates of air and gas. The frequency of the oscillations is determined as a function of the flow rate of the mixture when tube lengths are varied. Applicability of the formula to the frequency of oscillations in nonresonance vibration combustion systems is demonstrated. Bibliography of 23 titles. Yu. F. Dityakin.

USSR

UDC 546.185

TELEGIN, G. F., KIREYEV, V. V., KORSHAK, V. V.

"Bis(o-Phenylenediamino)cyclotriphosphazotrienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1499-1502

Abstract: Heterocyclic compounds were synthesized from o-phenylenediamine and geminally substituted chlorocyclotriphosphazotrienes -- 1,1-diphenyl-tetrachlorocyclotriphosphazotriene and 1,1-diaminotetrachlorocyclotriphosphazotriene. The process was carried out in anhydrous solvents, using triethyl amine or pyridine as hydrogen chloride acceptors. The corresponding bis(o-phenylenediamino)cyclotriphosphazotrienes were identified.

1/1

1/2 008 UNCLASSIFIED
TITLE--BASICITY AND REACTIVITY OF ACETALS -U- PROCESSING DATE--04DEC70

AUTHOR--(05)-VASILYEV, N.I., VOLKOV, V.P., IRZHAK, V.I., TELEGIN, G.F.,
YENIKOLOPYAN, N.S.
COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(3), 579-83

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETAL, SOLUTION ALKALINITY, ALKOXIDE, SILANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/002 STEP NO--UR/0195/70/011/003/0579/0583

CIRC ACCESSION NO--AP0140285

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 008

CIRC ACCESSION NO--AP0140285

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BASICITY OF 10 ACETALS WAS
DETD. BY IR SPECTROSCOPY BY THE SHIFT OF UPSILON SUBOH DUE TO ASSOEN.
WITH PHOH. ALL INVESTIGATED ACETALS ARE VERY WEAK BASES (KAPPA
SUBASSOCN. LESS THAN 4.1) AND THEIR BASICITY DOES NOT AFFECT THEIR
REACTIONS WITH ALKOXY SILANES. FACILITY: INST. KHIM. FIZ.,
CHERNOGOLOVKA, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--TRANSIENT PROCESS AND STATISTICAL PHENOMENA IN AN HE-NE LASER NEAR
THE EXCITATION THRESHOLD -U-
AUTHOR--(03)-TELEGIN, G.G., UGOZHAYEV, V.D., FOLIN, K.G.
COUNTRY OF INFO--USSR
SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, FEB. 1970, P. 353-356
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--HELIUM NEON LASER, LASER EXCITATION, LASER OSCILLATION, SINGLE
MODE LASER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1479 STEP NO--UR/0051/70/028/000/0353/0356
CIRC ACCESSION NO--AP0112473
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE STATISTICAL CHARACTERISTICS OF THE TRANSIENT PROCESS IN A HELIUM-NEON LASER OPERATING AT A WAVELENGTH OF 6328 Å NEAR THE EXCITATION THRESHOLD, UNDER CONDITIONS WHERE THE RISE TIME OF THE LIGHT WAVE FIELD IN THE RESONATOR EXPERIENCES PRONOUNCED OSCILLATIONS. BLOCKING PULSES OF A DURATION OF 30 MICROSECONDS WITH A STEEP TRAILING EDGE WERE APPLIED TO AN ELECTROOPTICAL SWITCH. OSCILLOGRAMS OF THE TRANSIENT LASING PROCESS WERE OBTAINED FOR SINGLE MODE AND MULTIMODE OPERATION. THE STATISTICAL CHARACTERISTICS OF THE TRANSIENT PROCESS ARE COMPARED WITH VALUES CALCULATED FROM FORMULAS FOR THE MEAN RISE TIME AND MEAN SQUARE DEVIATION PROPOSED BY BAKLANDOV ET AL. (1969).

UNCLASSIFIED

Optics & Spectroscopy

USSR

UDC 621.378.3

BRAZOVSKIY, V. Ye., LISITSYN, V. N., and TELEGIN, G. G.

"Some Peculiarities of Transition Processes in a He-Ne Laser at $\lambda = 0.63 \mu$ "
Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 17, No 5, 1972, pp 879-880

Abstract: Some peculiarities in the transition processes of a He-Ne laser operating with a wavelength of 0.63 microns are discussed. They were observed during weak modulation of the discharge current by square pulses, with a constant current of 8 ma maintaining the discharge in a tube measuring 350 mm long with an inner diameter of 3.5 mm. The experiment described in this paper consisted of observing the form of the generated pulses as a function of the partial pressures in the tube. With the Ne pressure held constant, the He pressure was varied from 0.8 to 2 mm Hg. Oscillograms of three pulse shapes corresponding to He pressures of 1.8 and 2.0 and an Ne pressure of 0.06 mm Hg are obtained. High transition process times were observed in experiments investigating transient process statistics.

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USSR

UDC 621.375.82

AKHMANOV, S. A., ORLOV, R. Yu., SKIDAN, I. B., TELEGIN, L. S.

"Picosecond Pulses in the Ultraviolet Band"

V sb. Nelineyn. protsessy v optike. (Nonlinear Processes in Optics-- collection of works), Vyp. 2, Novosibirsk, 1972, pp 27-34 (from RZh-Fizika, No 12, Dec 72, Abstract No 21D869)

Translation: An experimental study was made of self-focusing and induced Raman emission in liquid nitrogen of picosecond radiation pulses with a power to 10^7 watts and a mean wavelength of $\lambda = 0.26$ microns. The pulses are obtained as a result of transformation of the radiation generated by a neodymium glass laser in the synchronization mode into the fourth harmonic. The laser radiation comprised 15-20 pulses 3-4 picoseconds in duration with a power of $3 \cdot 10^9$ watts. The efficiency of conversion into the fourth harmonic in the system made up of the generator with a core 24 cm long and 2 series frequency doublers was 1-2%. The high-power stability of the fourth harmonic was noted. This was achieved with difficulty in the nanosecond pulse mode. The induced Raman emission threshold was reached for a fourth harmonic pulse power of 10^6 watts. The self-focusing and anomalous broadening of the pulse spectrum, the mechanism of which has been inadequately investigated, were also observed in a number of experiments. The bibliography has 9 entries.

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USSR

AKHMANOV, S. A., ORLOV, R. Yu., SKIDAN, I. B., and TELEGIN, I. S.

"Formation of Subpicosecond Pulses in the Ultraviolet Range by Multiple Nonlinear Transformations"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 16, No 8, 20 October 1972, pp 471-475

Abstract: This article describes an oscillator of ultrashort pulses in the wavelength range of 0.26 to 0.28 microns, with the pulses having a width of less than $0.5 \cdot 10^{-12}$ seconds and a power of approximately 10 MW. To generate these pulses, the radiation frequency of a picosecond laser using glass with Nd^{3+} was twice doubled. The basic advantage of the method described in this letter is the improvement in the pulse-train structure that can be achieved in the process of multiple nonlinear transformations. A diagram of the experimental apparatus consisting of a picosecond pulse oscillator using LGS-1 glass and two frequency doublers, is given. The pulses thus produced can be used as pumping sources for ultraviolet lasers for determining the relaxation time of electronic levels and for investigating nonstationary, nonlinear effects. The authors are connected with the M. V. Lomonosov State University of Moscow.

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USSR

UDC: 621.317.32

SHAKHOV, E. K., ~~TELEGIN, S. M.~~, and SHLYANDIN, V. M.

"Digital Measurement of A-C Effective Voltage"

Leningrad, Priborostroyeniye, No 5, 1972, pp 17-21

Abstract: A method for the highly accurate measure of the effective values of a-c voltages in the low and infrared frequency ranges is described. The method uses intermediate signal transformation to a frequency permitting a digital count of the effective value of a voltage of arbitrary shape independent of the latter's frequency. The block diagram of one instrument for employing this method is given together with a verbal and mathematical explanation of its performance, and reasons for the superiority of this method over conventional ones are presented. An account of the practical check of the method is also given. The authors are associated with the Penza Polytechnical Institute.

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USSR

SUSLOV, V. P., TELEGINA, I. A.

"Method of Calculating Decks with Several Cross Couplings, Considering Shear and Flat Stressed State"

Tr. Nikolayev. Korablestroit. In-ta [Works of Nikolayev Shipbuilding Institute], No 50, 1971, pp 59-64, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V943 by the author's).

Translation: A double deck is calculated, consisting of a large number of beams in the main direction and several cross couplings. The nature of fastening of the deck around the contour and the external load are arbitrary. The problem is solved using the idea of the method of selecting the load on the cross couplings, as well as the dependence between bending moment and deck bend. Calculation is reduced to solution of algebraic equations produced from the condition of equality of bending of the beams in the two directions. 7 Biblio. Refs.

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UNCLASSIFIED
TITLE--DOUBLE BRAGG REFLECTION IN IRRADIATED LITHIUM FLUORIDE SINGLE CRYSTALS -U-
AUTHOR--(02)--TELEGINA, I.V., KOLONTSOVA, E.V.
PROCESSING DATE--02OCT70
COUNTRY OF INFO--USSR
SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 195-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--LITHIUM FLUORIDE, SINGLE CRYSTAL, NEUTRON IRRADIATION, REFRACTIVE INDEX
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0768
CIRC ACCESSION NO--AP0107310
STEP NO--UR/0070/707015/001/0195/0196
UNCLASSIFIED

2/2 031
 CIRC ACCESSION NO--AP0107310 UNCLASSIFIED PROCESSING DATE--02OCT70
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LINES CAUSED BY DOUBLE BRAGG REFLECTION AND OBSD. ON LIF SINGLE CRYSTALS IRRADIATED WITH AN INTEGRAL FLUX OF 10 PRIME19 NEUTRONS-CM PRIME2 WERE NORMAL TO LINES CONNECTING THE TRACK OF THE PRIMARY RAY WITH THE CORRESPONDING BRAGG REFLECTIONS. THE FORMS OF THE INTENSITY DISTRIBUTIONS IN THE DOUBLE BRAGG REFLECTION LINES AND THE ACTUAL SMALL ANGLE SCATTERING ARE DIFFERENT. FOR THE DOUBLE BRAGG REFLECTION INTENSITY, SMOOTHNESS AND MONOTONICITY ALONG THE LENGTH AND WIDTH OF THE LINES WERE NOT PRESENT. AFTER POST IRRADN. HEATING (650DEGREES FOR 4 HR), DIFFERENCES IN INTENSITY DISTRIBUTION WERE NOT AS SHARP: VERTICAL LINES CORRESPOND TO 2 DIMENSIONAL DIFFRACTION ON DISLOCATION PILE UPS IN THE (111) PLANES, AND THE REST, TO DOUBLE BRAGG REFLECTION. THE DOUBLE BRAGG REFLECTION DISAPPEARS BY ROTATION OF THE CRYSTAL ABOUT AN ANGLE EQUAL TO THE GENERAL ANGLE OF DISORDERING OF FRAGMENTS PROVIDING THAT DOUBLE BRAGG REFLECTIONS FROM OTHER PLANES DO NOT COINCIDE ON A GIVEN LINE. BY INCREASING THE DISORDER, THE PROBABILITY OF DOUBLE BRAGG REFLECTION PHENOMENA INCREASES DUE TO THE INCREASE OF ANGULAR DISORDERING OF THE FRAGMENTS, AND THE EFFECT OF 2 DIMENSIONAL DIFFRACTION DECREASES.

UNCLASSIFIED

1/2 036 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--AFFECTION OF THE FOLLICULAR APPARATUS OF THE SKIN IN WORKERS
OCCUPIED IN PRODUCTION OF BUTYL ETHER OF 2,4,5,TRICHLORPHENOXY ACETIC
AUTHOR--(02)-TELEGINA, K.A., BIKBULATOVA, L.I.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 3, PP 35-39
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INDUSTRIAL HYGIENE, SKIN, TOXICOLOGY, UV IRRADIATION, BLOOD,
BLOOD VESSEL, LIVER FUNCTION, IRRITANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1986/0690 STEP NO--UR/0206/70/000/003/0035/0039
CIRC ACCESSION NO--AP0102674
UNCLASSIFIED

2/2 036

CIRC ACCESSION NO--AP0102674

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OBSERVATIONS AND EXAMINATIONS REVEALED AFFECTIONS OF THE FOLLICULAR APPARATUS OF THE SKIN AND IRRITATIONS OF THE NASOPHARYNGEAL MUCOSA IN PERSONS HAVING PROLONGED CONTACTS WITH CHEMICAL SUBSTANCES USED IN PRODUCTION OF BUTYL ETHER OF 2,4,5,TRICHLORPHENOXY ACETIC ACID. AT THE SAME TIME SLIGHT DEVIATIONS FROM THE NORMAL WERE FOUND IN SOME INDICES OF THE BLOOD, LIVER FUNCTION, BLOOD VESSELS, PERMEABILITY OF THE HORNY LAYER AND SENSITIVITY OF THE SKIN TO ULTRAVIOLET IRRADIATION. DISCONTINUANCE OF THE CONTACT WITH CHEMICAL IRRITANTS AND PROLONGED TREATMENT RESULT IN REGRESSIONS OF PATHOLOGICAL CHANGES IN THE SKIN AND NORMALIZATION OF DISORDERS IN THE VITAL FUNCTIONS.

UNCLASSIFIED

5-PRS 59208
6-73

673

VII-7b. EFFECT OF THE DEFECT STRUCTURE OF THE SUBSTRATES ON THE PROPERTIES OF AUTOEPITAXIAL GASES

article by G. F. Kuznetsov, A. A. Tselarin, A. I. Khisl'in, L. S. Tselarina, scientist of Radio Engineering and Electronics of the USSR Academy of Sciences, Moscow; Novokholitskiy, M. S. Krasnaya po Proektam Moskva i Sibirskaya Priborostroyeniya, Kirovskiy Avtomatizatsionnyy Plant, Krasnodar, 17-17 June, 1966, p. 93.

*Extracted with an off-diagonal.

Substrates with an orientation of (001) were manufactured from single monocrystals of GaAs alloy with Cr. The defect structure of the epitaxial films of the GaAs alloy was studied by the X-ray topographic method. The films were grown by the open chloride method. The epitaxial film with a different defect structure. The mobility of 2-3 monocrystalline, in one at 300° K and 77° K.

In the imatinized crystals the dislocations form interferences by the crystal lattice planes. The carriers were prepared in the various bags divided into regions of the collimator form. The mobility [to 10^{-10} cm²/v-sec at 77° K] can be obtained. The cells mentioned substrates with lattice collimator form [hundreds of microns]. The mobility with small cell dimensions [less than microns]. On the substrate are systematically obtained under the same conditions.

LEGINA, T. A.

FORMATION OF AMINO ACIDS ON IRRADIATION OF FOG CONTAINING
FORMALDEHYDE AND AMMONIUM NITRATE WITH UV LIGHT

[Article by T. Ye. Pavlovskaya, T. A. Telagina, A. V. Sobol'skaya, and
I. Ye. El'pinner, (Dec.) 1969, Izvestiya Akademii Nauk SSSR, Seriya
Biologicheskaya, Russian, No 6, 1971, submitted 15 June 1971, pp 92-925]

One of the possible ways of the abiogenetic formation of
biologically important materials under the conditions of
the primordial earth as well as under extraterrestrial
conditions could have been the photochemical processes
occurring in fogs, raindrops, and in clouds. Experimental
data obtained by simulating these conditions are
reported. The fog consisting of formaldehyde, ammonium
nitrate and water was obtained by means of an ultrasonic
generator and irradiated with 254 nm UV light. Olycine,
alanine, and possibly threonine were identified among
the photochemical products.

According to the present concepts, the generation of life was preceded
by a long period of chemical evolution during which the formation of substances
necessary for life processes occurred (Oparin, 1957). One of the experimental
techniques used in the investigation of this problem in recent years is the
study of the abiogenetic formation of compounds of biological importance in
systems simulating the conditions of primordial earth (Pashynskiy and Pavlovskaya,
1964; Pavlovskaya, 1971).

On the other hand, the possibility of the abiogenetic formation of
biologically important compounds is proved by the discovery of organic com-
pounds in extraterrestrial sources. Fertile data may be obtained, first
of all, from the investigation of meteorites belonging to the class of
carbonaceous chondrites containing organic compounds. In one investigation
of this type, describing the analysis of a meteorite that fell in the region
of Murchison, Australia in September 1969 (Kvenvolden et al., 1970), convincing
proofs of the extraterrestrial origin of the amino acids and hydrocarbons
found in the meteorite are cited.

JPRS 55304

29 February 1972

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[1 - USSR - C]

USSR

UDC669.294.5'293'849

SAVITSKIY, YE. M., TYLEINA, M. A., ALYUSHIN, V. YE., KUZ'MA, YU. B., and
TELEGUS, V. S., Moscow

"Ternary Sigma- and Chi-Phases in the Ta-Nb-Re System"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan/Feb 74, pp 229-233

Abstract: The structure and certain physical and mechanical properties of sigma- and chi-phases in the ternary system Ta-Nb-Re were investigated, where it was found that this system is characterized by a large region of ternary solid solutions of Re in Ta and Nb, low solubility of Ta and Nb in Re, and the formation of two compounds of the sigma- and chi-phase type where the sigma-phase exists only at high temperatures, being decomposed into the alpha-solid solution and chi-phase. Lattice parameters, melting points, hardness, resistivity, and transition temperature to the superconducting state were determined for the sigma- and chi-phases. Alloy composition and transition temperatures are given for alloys with a constant Re content (approximately 71%), for the binary chi-phase (Re_3Nb) and the binary chi-phase. The transition temperature to the superconducting state of ternary chi-phases was 1.5-2 times higher than the transition temperature for binary chi-phases in Nb-Re and Ta-Re systems. Two figures, one table, seven bibliographic references.

1/1

USSR

TELEMTAYEV, M. M.

UDC: 519.1

"Systems of Different Representatives, Graphs and Hamiltonian Cycles"

Alma-Ata, Matematika i mekhanika--sbornik (Mathematics and Mechanics--collection of works), vyp. 7, ch. 1, 1972, pp 167-169 (from RZh-Kibernetika, No 5, May 73, abstract No 5V496 by I. Sigal)

Translation: A relation is established between systems of different representatives and Hamiltonian cycles in graphs. It is proved in particular that the number of isolated cycles is equal to the permanent of the adjacency matrix.

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USSR

TELEMTAYEV, M. M.

UDC: 519.1

"Concerning Some Properties of Hamiltonian Cycles in Graphs"

Alma-Ata, Tekhn. nauki--sbornik (Technical Sciences--collection of works), vyp. 12, 1972, pp 133-137 (from RZh-Kibernetika, No 5, May 73, abstract No 5V499 by I. Sigal)

Translation: The properties of Hamiltonian cycles are studied on the basis of the well known assertion that the set of such cycles is described by matrices of cyclic substitutions.

USSR

TELEMTAYEV, M. M.

UDC: 519.1

"A Method of Numbering Hamiltonian Cycles in Graphs"

Alma-Ata, Tekhn. nauki--sbornik (Technical Sciences--collection of works), vyp. 12, 1972, pp 130-133 (from RZh-Kibernetika, No 5, May 73, abstract No 5V498 by I. Sigal)

Translation: The operation of "modified" involution of the adjacency matrix of a graph is used for numbering Hamiltonian cycles. It is proposed that the traveling salesman problem be solved by combining the operation of reducing the matrix of distances with involution. It is stated that in practical solution of the traveling salesman problem, "practically usable results" were obtained; no other information is given on the effectiveness of the algorithm.

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USSR

TELEMTAYEV, M. M.

UDC: 519.1

"Graph Generating Functions and Some Results on the Problem of Numbering Hamiltonian Cycles"

Alma-Ata, Matematika i mekhanika--sbornik (Mathematics and Mechanics--collection of works), vyp. 7, ch. 1, 1972, pp 170-173 (from RZh-Kibernetika, No 5, May 73, abstract No 5V497 by I. Sigal)

Translation: The concept of a graph generating function is introduced as follows. The variable x_i and the function

$f_i(x_1, x_2, \dots, x_n) = \sum_{j=1}^n a_{ij}x_j$ are put into correspondence with the

vertex i , where a_{ij} are elements of the i -th row of the adjacency matrix of the graph. The number of nonzero terms in the sum is equal to the degree of vertex i . Then the generating function of graph G is defined as

$f(G) = \prod_{i=1}^n f_i(x_1, x_2, \dots, x_n).$

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USSR

TELENTAYEV, M. M., Matematika i mekhanika, vyp. 7, ch. 1, 1972,
pp 170-173

This implies for instance that the necessary condition for existence of the hamiltonian cycle $x_{a_1}, x_{a_2}, \dots, x_{a_n}$ is that the term of given type in the expression for $f(G)$ have a nonzero coefficient. A number of theorems are proved on numbering of hamiltonian cycles.

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USSR

UDC: 541.124:532.5

STULOV, V. P., TELENIN, G. F., TURCHAK, L. I.

"Supersonic Flow Around Blunt Bodies by Various Gas Mixtures With Rapid Chemical Reactions"

Tr. Sektsii po chisl. metodam i gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem, 1969. T. 3 (Works of the Section on Numerical Methods and Gas Dynamics of the Second International Colloquium on Gasdynamics of Explosion and of Reacting Systems), Moscow, 1971, pp 3-28 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B1114)

Translation: A numerical method is proposed for calculating flows around the head section of axisymmetric bodies washed by various gas mixtures when nonequilibrium physicochemical processes are present. The idea of the method is that the complete system of relaxation gasdynamics equations is broken down into two systems, one of which (the equations of motion) is solved by the conventional method, while the relaxation equations are solved by an implicit difference scheme along the stream lines. The solution of the problem is found by iterations between the systems on each calculation layer. It is pointed out that the proposed method can be used to study

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USSR

STULOV, V. P. et al., Tr. Sektsii po chisl. metodam i gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem. 1969. T. 3, Moscow, 1971, pp 3-28

flows with an arbitrary degree of nonequilibrium. It is assumed in doing the calculations that the supersonic flow washes the body at a zero angle of attack, and that a departing shock wave is formed in front of the body. It is assumed that all internal degrees of freedom of the particles in the gas mixture, including vibrational degrees of freedom, come into equilibrium on the shock wave front. The results of the calculations are graphically presented.

Airflow around a spherically blunted body is studied under conditions where oxygen dissociation alone is significant in a system of chemical reactions. The validity of binary similarity (similarity of flow for a constant product of the characteristic linear dimension by the density of the oncoming flow) is verified over a wide range of conditions. The selected physicochemical model of air is justified for the given range of parameters of the oncoming flow ($M=6-15$). Nonequilibrium flow of a mixture of carbon dioxide, nitrogen and argon is considered. It is shown that the flow is strongly dependent on the initial concentrations of the components of the mixture.

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USSR

STULOV, V. P. et al., Tr. Sektsii po chisl. metodam i gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem. 1969. T. 3, Moscow, 1971, pp 3-28

The validity of flow transition to equilibrium flow is considered. Certain questions relating to the selection of the physicochemical model and the kinetics in the given mixture are analyzed. Bibliography of 11 titles.
O. K. Rozanov.

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RND / 18.06.1973
 1973

around various bodies (a sphere, a right circular cylinder, an ellipsoid, a hyperboloid of revolution, and a blunt cone) for Reynolds numbers $R \leq 10^3$ and Mach numbers $2 \leq M_\infty \leq 15$. Calculation results revealed a weak upstream transmission of the perturbation; this permitted calculation of the flow field on the windward side of the body in the stream independently of the flow on the lee side. The solutions are sought using an explicit heat flow characteristic by the method of adjustments. The density, pressure, the shock wave and of the sonic line are listed for various values of R and M . Good agreement with experimental data for $R > 10$ is indicated.

Stolov, V. P., G. F. Telenin, and I. I. Turchak.
Supersonic flow around blunt bodies by various gas mixtures with high speed chemical reactions.
 Trudy sektsii po khimicheskimi reaktsionam v gazovoy dinamike 2-go Mezhdunarodnogo kongressa v gazovoy
 aerodinamike vzytykh i reaktivnykh sistem, po
 1969. Moskva, v. 3, 1971, 3-28. (RZhMekh, 5/72,
 no. 5B1114)

A numerical method is proposed for the calculation of flow near the frontal part of axisymmetric blunt bodies in various gas mixtures undergoing nonequilibrium chemical processes. Underlying the method is the notion that the total system of the equations of relaxation (motion) is divided into two systems, one of which (the equations of difference scheme along the streamline is used for solving the relaxation equations. The problem is solved by iteration between the systems at each calculated layer. The proposed method makes it possible to investigate flow with an arbitrary degree of unevenness. The calculations assume that the hypersonic flow around the body.

USSR

UDC: 621.43.011:533+621.5:533

LEBEDEV, M. G., ~~TELENIN, G. F.~~

"Interaction Between a Supersonic Jet and an Acoustic Field"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works of the Institute of Mechanics, Moscow University), 1970, No 5, pp 88-107 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B405)

Translation: A model is proposed which explains pulsations of a supersonic jet with discrete frequency, and its mathematical description is given. The scheme by which narrow-band pulsations arise and are sustained when an isolated supersonic jet escapes is considered. In this scheme, the supersonic fluctuating jet on the section from the nozzle tip to the region of decay is likened to a resonator. In formulating the mathematical problem, a study is made of the amplitude-phase response of the jet; for this purpose, interaction between the supersonic jet and the external acoustic field is considered. For purposes of simplification, it is assumed that external acoustic fields are two-dimensional. The flow is considered potential, and the linear problem is solved for equations of potentials of

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LEBEDEV, M. G., TELENIN, G. F., Nauch. tr. In-t mekh. Mosk. un-ta, 1970,
No 5, pp 88-107

perturbations of velocity of the jet and the medium with corresponding boundary conditions. A Laplace transform is used for the solution in the case of the plane problem. Solutions are found for the system of equations, a digital computer being used to compute the perturbations of potentials, components of velocity and pressures. A number of special cases are considered. Graphs are presented for the coefficients of amplification of perturbations of pressure in the jet as a function of the frequency of acoustic waves in cases of antisymmetric and symmetric oscillations for a number of distances from the nozzle tip. A digital computer solution is found for the nonlinear problem of interaction between the jet and acoustic waves running along its boundaries. Yu. F. Dityakin.

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USSR

UDC: 533.6.011

MINOSTSEV, V. B., ~~TELENIN, G. F.~~

"Investigation of Supersonic Three-Dimensional Flow Around Blunt Bodies"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works of the Institute of Mechanics, Moscow University), 1970, No 5, pp 4-19 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B310)

Translation: The paper generalizes the results of studies of supersonic three-dimensional flow around smooth bodies carried out in recent years at the Institute of Mechanics of Moscow State University with the use of numerical methods developed under the direction of G. F. Telenin. The flow is first analyzed on the frontal surfaces of bodies. It is noted that in the case of small angles of attack, the flow pattern in the neighborhood of the critical point for all bodies is practically indistinguishable from the flow pattern at the zero angle of attack. The gradients of velocity on the body in the plane of symmetry and perpendicular to the plane of symmetry are similar, and the geometric pattern of flow from the critical point differs little from a dicritical node. For large angles of attack in the case of a monotonic increase in the curvature of the con-

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MINOSTSEV, V. B., TELENIN, G. F., Nauch. tr. In-t mekh. Mosk. un-ta, 1970,
No 5, pp 4-19

tour of the body along a generatrix, all stream lines (with the exception of those lying in the plane of symmetry) approach the critical point with a common tangent perpendicular to the plane of symmetry. The stream line with maximum entropy is located closer to the axis of symmetry of the body than the critical stream line. With an increase in the curvature of the body along the generatrix, all stream lines at the stagnation point have a common tangent lying in the plane of symmetry of the flow, and the stream line with maximum entropy lies further from the axis of symmetry of the body than the critical line. Flow around blunt bodies of low aspect ratio of the spherical sector type is then considered. A typical characteristic of flow around such bodies is the presence of a detached zone on the lee side, which cannot be realized in an ideal gas flow. With the use of pressure levels in the detached zone borrowed from experimental data, an approximate method is proposed to account for the detached region. It is shown by numerical calculations that the proposed method satisfactorily simulates real flow of a viscous gas round a body while the boundary layer on the forward surface is fairly thin. Graphs present the results of calculations for a body with a frontal surface close to a sixty-degree spherical sector with an inverted cone angle from 0° to 30° at angles of attack of up

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MINOSTSEV, V. B., TELENIN, G. F., Nauch. tr. In-t mekh. Mosk. un-ta, 1970.
No 5, pp 4-19

to 30° and Mach numbers of oncoming flow $M_\infty \geq 5$.

Flow around high-aspect blunt bodies at angles of attack also revealed a number of singularities. It is noted in particular that even at low angles of attack there is considerable gas overflow leading to an increase in the pressure on the leeward side over the pressure on the windward generatrix beginning at a certain length. This length is practically independent of the angle of attack. In numerical calculations on the lee side the characteristics start to intersect at some distance from the blunting, which is due to the development of a compression shock.

The last part of the work gives an approximate account of the effect of the real nature of the gas in hypersonic flow around segmental bodies. It is proposed that flow around the frontal section be considered equilibrium flow with an adiabatic exponent determined from the condition of equality of the density ratio in the forward compression shock. Calculation of the supersonic region is done at an adiabatic coefficient obtained from the condition of "freezing" of the state of the gas at the midsection of the body. A comparison with the results of calculation of nonequilibrium streamline flow shows satisfactory accuracy of the proposed model. The data of numerous calculations are presented in graphs. Bibliography of 13 titles. I. N. Murzinov.

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1/2 029
UNCLASSIFIED
TITLE--HARDENING OF POLY,ORGANOSILOXANES --U-
AUTHOR--(03)-ANDRIANOV, K.A., MANEVICH, I.YA., TELESHEVA, N.A.
PROCESSING DATE--04DEC70
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 265,448
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--POLYMER, SILOXANE, CHEMICAL PATENT, ORGANOLEAD COMPOUND,
ORGANOTIN COMPOUND, HARDNESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1762
CIRC ACCESSION NO--AA0137002
STEP NO--UR/0482/70/000/000/0000/0000
UNCLASSIFIED

2/2 029
CIRC ACCESSION NO--AA0137002
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. POLY(ORGANOSILOXANES) WITH
FUNCTIONAL GROUPS ARE HARDENED QUICKLY AND AT LOW TEMPS. WITH AN ACIDIC
CATALYST OF PB METHYLPHOSPHONATE OR DIBUTYL TIN. FACILITY:
INSTITUT ELEMENTOORGANICHESKIKH SOYEDINENIY AN SSSR.

UNCLASSIFIED

USSR

UDC 616.927-085.371:576.851.49]-039.71-032:611.3]-036.8

MESHALOVA, A. N., KURLOVA, V. I., TELESHEVSKAYA, E. A., BABINA, V. P.,
GOKHSHEYN, S. E., LIROVA, B. M., LAVROVSKAYA, V. M., TAMARIN, Yu. A., and
NEGINA, Yu. I., Moscow Institute of Vaccines and Sera imeni Mechnikov,
Gor'kiy Institute of Epidemiology and Microbiology, and Moscow Municipal and
Kuntsevo Sanitary Epidemiological Stations

"Peroral Immunization of Humans with Typhoid Vaccines in a Strictly Controlled
Experiment"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972,
pp 71-77

Abstract: Following a successful trial of enteral immunization of children with
heated typhoid vaccine, larger doses of the same vaccine - heated and chemical -
contained in sugar-coated tablets were given in a double-blind test to 1225
children age 3 to 15 and 274 adults in 2 equal doses 15 to 30 days apart. The
reactions to the vaccine were mild and they generally occurred after ingestion
of the first tablet: in 13.60% and 9.31% those who took the heated and chemical
vaccines, respectively (in 5.89% of those who received placebo). Both vaccines
produced high antibody titers against the O, Vi, and H antigens in the sera of
the children as well as the adults. The authors recommend a major epidemiologi-
cal trial of the vaccines in regions with a high incidence of typhoid.

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USSR

UDC: 621.373.5

GRISHKIN, V. A., POL', L. M., and TELESHEVSKIY, V. I.

"Stable Semiconductor Oscillator With Two Coherent Radio Frequencies"

Moscow, Pribory i tekhnika eksperimenta, No. 2, 1971, pp 122-124

Abstract: The instrument described was designed to help solve problems in experimental optical electronics, particularly in the excitation of ultrasonic light modulators, where there is a need for an oscillator of two harmonic signals whose frequencies differ by an amount several orders less than their nominal values. In this instrument, the difference between the two frequencies is 10^{-4} or 10^{-5} of their nominal value. The oscillator is fully transistorized, and uses a phased automatic frequency control circuit. A block diagram and schematic are given, and the operation of the system is explained. Experiments made on the instrument showed it to have an oscillator instability of $\pm 10^{-5}$. The authors, members of the Moscow Machine-Instrument Institute, express their gratitude to S. F. Korndorf and A. A. Sanin, the latter now deceased, for their comments.

1/1

UNCLASSIFIED
TITLE--^{U2C}A FIVE CHANNEL SEMICONDUCTOR THERMOMETER WITH THERMISTORS -U-
AUTHOR--(03)--PROTODYAKONOV, V.A., SVERDOV, V.I., TELESHEVSKIY, V.I.
PROCESSING DATE--27NOV70
COUNTRY OF INFO--USSR
SOURCE--PRIBORY I SISTEMY UPRAVLENIYA, 1970, NR 3, PP 46-47
DATE PUBLISHED-----70
SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS
TOPIC TAGS--THERMOMETER, THERMISTOR, SEMICONDUCTOR DEVICE/(U)HT54
THERMISTOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--3007/1649
CIRC ACCESSION NO--AP0136910
STEP NO--UR/0445/70/000/003/0046/0047
UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0136910

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO OVERCOME THE PROBLEM OF THE NONLINEAR RELATIONSHIP BETWEEN RESISTANCE AND TEMPERATURE IN THERMISTORS, AN IMPROVED INSTRUMENT HAS BEEN DESIGNED TO INCREASE THE DYNAMIC MEASUREMENT RANGE OF THE UNIT WITHIN THE 17.3-25.8 C TEMPERATURE RANGE. THIS RANGE IS BROKEN DOWN INTO FIVE SUBRANGES WITH ONE MT-54 THERMISTOR FOR EACH, WHICH CAN BE TURNED ON SEQUENTIALLY FOR MEASUREMENT AT FIVE DIFFERENT POINTS IN SPACE. THE MEASUREMENT BRIDGE IS POWERED BY A 2.5 VOLT 50 CYCLE STABILIZED SOURCE. THE INSTRUMENT'S SENSITIVITY FOR THE INDICATED RANGE IS 160 MU A-C. THRESHOLD SENSITIVITY IS 0.01 C, AND MEASUREMENT ACCURACY IS PLUS OR MINUS 0.02 C. LINEARITY FOR EACH OF THE FIVE MEASUREMENT CHANNELS IS NO WORSE THAN 0.5PERCENT.

UNCLASSIFIED

USSR

TELESHOV, E. N., and PRAVEDNIKOV, A. N.

"Production Methods and the Results of the Utilization of Thermostable
Plastics"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 3-8

Abstract: A review with 57 references discussing most recent progress in thermostable plastics. Following types of plastics are covered: aromatic polyamides, polyarylates, aromatic polysulfones, polyphenylene oxides, aromatic polyimides, and polybenzimidazoles. In the USSR the technology of plastics which are thermally stable up to 250°C has been developed. There is an almost total lack of polymers capable of performance at higher temperatures. Several directions are proposed for production of thermally stable materials: synthesis of thermally stable oligomers which solidify without producing volatile materials; synthesis of thermoplastic fluoropolymers whose solidification leads to the formation of heterocyclic structures by an isomerization mechanism; and finally development of new polymers with higher thermal stability.

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USSR

UDC 677.521:532.64

SINITSYN, V. A., RODIONOV, R. A., TELESHOV, V. A., All-Union Scientific
Research Institute for Glass Plates and Glass Fibers

"Effective Value of the Advancing Angle in Impregnation of Porous Glass
Fibers with Polymer Dispersions"

Moscow, Kolloidnyi Zhurnal, vol 35, No 6, November-December 73, pp 1191-
1193

Abstract: Impregnation of glass fibers with ethanol, toluene, and *n*-heptane at 20°C, water at 20 and 80°C, and 4.85-27.33% aqueous dispersions of latex at 20-80°C was studied. From data on the ratios of the experimentally determined specific surface area to calculated values, the cosine of the advancing angle for the organic substances was found to be 3 to 4 times that for water. For the latex, the data indicate that the experimental value of the specific surface area increased with increasing temperature, showing that a larger part of the glass fiber surface participates in the impregnation at 80 than at 20°C. Heating of the high-concentration aqueous dispersion provided impregnation conditions similar to those of low-concentration latex, with an increased impregnation rate. The dependence of the capillary rise on time was determined experimentally, and the specific surface area of the glass fibers, whose radii were known, was calculated from the experimental data.

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USSR

UDC 669.715:620.183

ZOLOTOREVSKIY, V.S., and TELESHOV, V. V.

"Quantitative Relations Between Mechanical Properties and the Structure of Cast Aluminum Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 187-194

Abstract: Statistical methods of correlation and regression analysis are used to analyze the relations between structural characteristics as well as between chemical properties and individual structural characteristics. The principal structural characteristics examined include: size of grain and dendritic cells of primary solid solution, number, size, shape, and distribution of excess phases, porosity, substructure of primary solid solution, and the density and distribution of dislocations. Binary alloys of aluminum with 2, 4.2, and 6% Cu were studied. The alloys were prepared from 99.99% pure aluminum and 99.95% copper. Mechanical properties were determined from rupture tests and measurements of hardness at room temperature. To obtain the initial structure, ingots 42 mm in diameter and 200 mm long were cast in a steel mold heated up to different temperatures in the 20-700° range. A total of more than 100 specimens of three alloys in different states were studied. The structure and mechanical properties of the specimens cut from each ingot

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USSR

ZOLOTOREVSKIY, V. S., et al, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/
Oct 71, pp 187-194

were evaluated in the cast state and after homogenization of different duration followed by quenching in water. The structural characteristics strongly affecting mechanical properties of alloys were singled out from those showing a weak effect. It was found that the concentration of the solid solution in a wholly homogenized alloy equal to or close to its average composition determines the general level of strength properties.

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USSR

UDC 669.71.018.9

AGEYEVA, G. N., ZOLOTOREVSKIY, V. S., TELESHOV, V. V., TSAREGORODTSEVA, A. I.

"Influence of Homogenization Modes of Ingots on Structure and Properties of Semi-finished Goods of Alloys in the Al-Zn-Mg System with $Zn/Mg \approx 2$ "

Metallurgiya [Metallurgy -- Collection of Works], No. 13, Leningrad, Sudostroyeniye Press, 1970, pp. 113-120. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. S G171 by the authors).

Translation: Combined analysis of the structure and properties of ingots and semifinished goods of an alloy in the Al-Zn-Mg system with ratio of $Zn/Mg \approx 2$ establishes the influence of homogenization modes on the final structure and properties of semifinished goods of this alloy. An accelerated mode of homogenization of ingots of the alloy Al-Zn-Mg with $Zn/Mg \approx 2$ is recommended for industrial testing. 2 figs; 5 tables; 6 biblio refs.

1/1

UNCLASSIFIED
TITLE--FORMULAE FOR CALCULATING THE MECHANICAL
COPPER ALLOY CASTINGS FROM THE STRUCTURE -U-
AUTHOR--(02)-ZOLOTOREVSKY, V.S., TELESNOV, V.V.
PROCESSING DATE--13NOV70
PROPERTIES OF ALUMINIUM
COUNTRY OF INFO--USSR
SOURCE--IZVEST. V. U. Z., TSVETNAYA ENT., 1970, (1), 121-126
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--MECHANICAL PROPERTY, ALUMINUM ALLOY, COPPER ALLOY, METAL
CASTING, BIBLIOGRAPHY, METAL TEST, INTERMETALLIC COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0532
CIRC ACCESSION NO--AP0124227
STEP NO--UR/0149/70/000/001/0121/0126
UNCLASSIFIED

CIRC ACCESSION NO--AP0124227
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE POSSIBILITY OF CALCULATING THE MECHANICAL PROPERTIES OF AL CU ALLOY CASTINGS BY ANALYSING THEIR STRUCTURAL CHARACTERISTICS (DENDRITE CELL SIZE, PROPORTION OF INTERMETALLIC INCLUSIONS SUCH AS CUAL SUB2, ETC.) IS DISCUSSED ON THE BASIS OF AN EXPERIMENTAL CORRELATION OF THESE PROPERTIES, AND EMPIRICAL FORMULAE ARE DERIVED FOR THIS PURPOSE. THE FORMULAE ARE ADEQUATE FOR PRACTICAL PURPOSES AND SAVE A GREAT DEAL OF TIME IN THE MECHANICAL TESTING OF INDIVIDUAL CASTINGS.

UNCLASSIFIED

Acc. Nr: AP0047386

Abstracting Service:
GEOPHYSICAL ABST.

Ref. Code:
5/70 480065

91898z Udmurt petroleums. Vol'ison, I. S.; Teleshov, M. N.; Sheikh-Ali, G. A. (USSR). Khim. Tekhnol. 1970, 15(1), 5-8 (Russ). The following properties of the title petroleum are reported: density, mol. wt., viscosity at 20°, and at 50°, congelation, H₂SO₄ tar, paraffin, silica gel resins, asphaltenes, coke, fraction b. ≤ 200° and ≤ 300°, acidity, and C₄-hydrocarbons.
GCJR

REEL/FRA
19790912

USSR

UIC 669.1:538.248

TELESNIN, R. V., SHISHKOV, A. G., OSUKHOVSKIY, V. E., SIGOV, A. S., and
OSUKHOVSKAYA, L. P., Moscow State University imeni M. V. Lomonosov; Far-
Eastern State University

"Coercive Force and Creeping of Domain Walls in Permalloy Films 200-1000 Å
Thick"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 959-
967

Abstract: Using Permalloy films (79NMA alloy) of various thickness, an attempt was made to show that creep intensity is a function of film thickness. Films were deposited under vacuum (10^{-5} mm Hg) on polished glass substrates at 250°C in the presence of a magnetic field of 150 oersted. Creep of domain walls was practically absent in films $d < 200$ Å. Maximum creep was observed in films 500-600 Å thick. Films $d > 1200$ Å showed a gradual increase in creep with thickness. A definite relation exists between the creep and the density of cross links in films. The creep of domain walls in films $d \sim 700$ Å took place as the result of sagging of long wall sections containing the largest number of cross links. In general, the creep rate in films 900-1000 Å was slower than that in films with $d \sim 700$ Å. The coercive force of the Neel
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USSR

TELESNIN, R. V., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 959-967

sections between the cross links did not depend on the film thickness and was ~ 0.1 oersted. As was evident from the powder patterns, the sagging of Neel sections between cross sections takes place uniformly on the film surface. The coercive force (H_{CH}) for films 200, 500, and 800 Å was 0.06, 0.08, and 0.12 oersted, respectively. The coercive force of sections between the sagging points on cross links was $H_c = 0.2-0.3$ oersted (minimum) for 500-700 Å films. It was lower for 200-500 Å films because of intensive scattering of fields which facilitate the breaking of cross links. The macroscopic coercive force of the domain boundary displacement (the starting field of the boundary, H_{cst}) did not change with the film thickness within 200-1000 Å. The value of H_{cst} characterizes the maximum height of potential barriers in front of the domain boundaries. These barriers are represented by points, and they are chaotically distributed on the film surface at a distance of 40-100 Å from each other. Their height varied within several critical values in the interval of 0.3-1.0 oersted. The distance between neighboring points of the domain boundary attachment was responsible for the maximum creep in ~ 600 Å films.

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1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THRESHOLD FIELD OF HETEROGENEOUS ROTATION IN THIN PERMALLOY FILMS
-U-
AUTHOR--(03)-KOLOTOV, O.S., POGZHEV, V.A., TELESNIN, R.V.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 217-19
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--PERMALLOY, METAL FILM, ANISTROPY, DYNAMIC STRESS, MECHANICAL
PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0185 STEP NO--UR/0126/70/029/001/0217/0219
CIRC ACCESSION NO--AP0054981
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054981

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR SMALL DOMAIN STRUCTURE WIDTHS (L SMALLER THAN OR EQUAL TO MU), THE THRESHOLD FIELD MAY EXCEED THE EFFECTIVE ANISOTROPY FIELD BY A FACTOR OF 4-5 OR MORE. WITH INCREASING L, THE EXCESS OF THE THRESHOLD FIELD OVER THE ANISOTROPY FIELD DIMINISHES. WITH INCREASING DOMAIN STRUCTURE WIDTH, THE CONTRIBUTION OF MAGNETOSTATIC INTERACTION INCREASES, AND THIS AFFECTS NOT ONLY THE STATIC PROPERTIES OF THE FILM (E. G. INCREASING THE SQUARENESS OF THE HYSTERESIS LOOP IN THE DIFFICULT DIRECTION), BUT ALSO THE DYNAMIC PROPERTIES.

UNCLASSIFIED

Thin Films

USSR

UDC: 539.216.22:538.24

KOLOTOV, O. S., POGOSHEV, V. A., and TELESNIN, R. V., Moscow State University
imeni M. V. Lomonosov

"The Threshold Field of Irregular Rotation on Thin Permalloy Films"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1,
Jan 70, pp 216-217

Abstract: The results are given of an investigation of the threshold field of irregular rotation in thin permalloy films (83 Ni;17 Fe). It may be expected that as the result of magnetization dispersion and magnetostatic interactions of local sections, the threshold field of irregular rotation at film magnetic reversal along the light axis must exceed the value of the effective anisotropy field H_k . The conditions of deposition were selected in such a way as to obtain finely divided films, i.e., films which divide themselves into a network of strip domains, more or less uniformly distributed on the film surface. The methods of Kobelev and Stein were used for measuring the anisotropy field. The threshold field H_0 was determined as a point of intersection of a straight line approximating the corresponding section of the magnetic reversal curve with the X-axis.

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USSR

KOLOTOV, O. S., et al, Akademiya Nauk SSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 216-217

The magnetic reversal curve was accomplished precisely along the easy direction. The obtained dependence of the difference $\Delta H = H_0 - H_{KK}$ on ℓ shows that for small ℓ ($\lesssim 10$ micron) the magnitude of the threshold field may exceed H_{KK} four or five times. Thus, with decreasing ℓ the role of the magnetostatic effect increases, and this appears not only on the film's static properties, but also on the dynamic properties. Orig. art. has: 1 figure, 1 table, and 14 references.

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USSR

UDC 669.046.5

2
KRUPMAN, L. I., SOCHNEV, A. Ye., DETOCHKA, V. I., TELESOV, S. A.,
OFENGENDEN, A. M., and NESTEROVICH, R. P.

"Steel Refining in Ladle by Self-Fluxing (Exothermic) Slag Mixtures"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS), (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys).
Izd-vo "Metallurgiya," No 61, 1970, pp 244-246

Translation of abstract: Results are presented of an investigation of the burning rate of self-fluxing mixtures as a function of their thermal state and humidity of the lime used. A procedure is described for preliminary melting of such mixtures with liquid refining of slag in a ladle before casting. Data are presented on experimental heats with refining by self-fluxing mixtures for preliminary melting in a 140-ton ladle. Advantages in using such mixtures are as follows: the degree of desulfurization obtained with the addition of a 3% mixture is on the average 52%; the steel contamination with nonmetallic impurities is reduced; and its plastic properties are improved. 2 tables.

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USSR

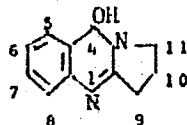
UDC 577.944/945

TELEZHENETSKAYA, M. V., KHASHIMOV, KH. N., YUNUSOV, S. YU., Order of the Red Banner of Labor Institute of the Chemistry of Plant Substances of the Uzbek SSR Academy of Sciences

"Peganol, a New Alkaloid from Peganum Harmala"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 5, 1971, pp 849-850

Abstract: By continuing the separation of the mixture of bases isolated from Peganum harmala in the flowering stage and the beginning of fruiting [Kh. N. Khashimov, et al., KhPS, 456, 1969], a substance was obtained with a melting point of 178-180 degrees, optically inactive, with the composition $C_{11}H_{12}N_2O$, M 188 (mass spectrometry) -- the new base peganol. The results of ultraviolet, infrared and nuclear magnetic resonance spectral studies are analyzed. The structure of peganol is



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USSR

UDC 547.944/945

ZHAREKEYEV, B. KH., TELEZHENETSKAYA, M. V., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"A Study of the Alkaloids of *Malacocarpus Crithmifolius*"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1971, pp 538-539

Abstract: *Malacocarpus crithmifolius* (Retz.) of the family Zygophyllaceae, has so far not been studied chemically.

The authors collected specimens in the budding stage from the Ustyurt Plateau, Karakalpakskaya ASSR, in May 1970. This raw material was first moistened with soda solution or ammonia, then extracted with chloroform. A total of 0.064% alkaloids was found in the leaves, and 0.88% in the stems (percent of dry weight). The composition of the alkaloid $C_{10}H_{14}N_2$, and its

mass and magnetic-resonance spectra, suggested that the base extracted from *Malacocarpus crithmifolius* was the same substance as this alkaloid. The infrared spectra of the two confirmed this view.

It is concluded that the extracted base is simply the dextrorotatory form of anabasine, extracted for the first time from vegetable material.

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USSR

UDC 547.944/947

KHASHIMOV, KH. N., TELEZHENETSKAYA, M. Y., SHARKHIMOV, N. N., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"Dynamics of the Accumulation of Alkaloids in *Peganum Harmala*"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1971, p 382

Abstract: This is a continuation of S. YU. YANUSOV's earlier work (1970) on the little-known process of alkaloid accumulation in *Peganum harmala*, a tall, perennial, deep-rooted grass. Samples were collected in Bukharskaya and Samarkandskaya oblasts. Above-ground portions of the plant were tested for alkaloid content in the vegetation, budding, flowering, fruit-bearing and terminal periods. There was a steady diminution, in that order, for above-ground portions, and also for roots, except that in the latter there was a slight upswing during the terminal period. Seeds collected following the terminal period showed a high alkaloid content (5.0%, as against a maximum 2.17% for the leaves and stalks), 84% of their alkaloids mass consisting of a mixture of harmine and harmaline. Pods yielded 1.08% of their dry weight in an alkaloid mass from which harmine and vasicinone were extracted. All yields were found to vary in connection with the age of the individual plant and growing site.

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USSR

UDC: 547.944/945

KHALILOV, D. S., TELEZHENETSKAYA, M. V., Azerbaydzhan State Medical Institute;
"Order of the Red Banner of Labor" Institute of the Chemistry of Plant
Materials, Uzbek SSR Academy of Sciences

"Senecio Alkaloids"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 1, 1973, pp 128 129

Abstract: A study was made of the alkaloid content of two species of Senecio from Azerbaydzhan: *S. rhombifolius* (Willd) Sch. Bip. and *S. kubensis* Grossh. Among the bases isolated from the alkaloid sum of the first species were a bitartrate with melting point of 193°C: $\left[\alpha \right]_D^{20} 40.1^\circ \text{C}$ (c 5.4, H₂O) identified as platyphilline bitartrate, a base with melting point of 217°C identified by IR spectroscopy as seneciphilline, and a third base identified by UV and IR spectra as neoplatyphilline bitartrate. The alkaloid sum of *S. kubensis* yielded seneciphilline.

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UDC 547.944:945

USSR

KHASHIMOV, Kh. N., TELEZHENETSKAYA, M. V., RASHKES, Ya. V., and YUNUSOV, S. Yu.,
"Red Banner of Labor Order" Institute of Plant Chemistry, UzbekSSR Academy of
Sciences

"Pegamine, a New Alkaloid from Peganum Harmala"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 4, 1970, pp 453-455

Abstract: The total alkaloid content of Peganum harmala was found to be 2.17 percent and consisted of peganine, vasicinone, harmine, desoxypeganine, desoxyvasicinone, and a new alkaloid melting at 160-161°, which the authors named pegamine. The structure of the compound was ascertained from spectral data, including UV, IR, and mass spectra. A scheme for the mass spectral fragmentation of the compound was proposed.

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SSR.

UDC 532.5

NETYUKHAYLO, A. P., TELEZHKIN, E. D., SHERENKOV, I. A.

"Transfer of Momentum in a Two-Dimensional Headless Stratified Flow of an Incompressible Fluid"

Tr. Khar'kov. otd. vod. kh-va prompredpriyatiy VNII VODGYes (Works of the Khar'kov Department of Water Economy of Industrial Enterprises of the All-Union Scientific Research Institute of Water Supply, Sewer Systems, Hydraulic Engineering Structures, and Engineering Hydrogeology), 1971, No. 9, pp. 33-47 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B565)

Translation: The results of various theoretical and experimental studies of flow regimes in open stratified flows are generalized under plane problem conditions. Dimensionless criteria R , F' , P and P_T are obtained from the Navier-Stokes, continuity, diffusion and heat conductivity equations, the observance of which ensures dynamic similarity of stratified flows if geometrical similarity and boundary conditions are fulfilled. If boundary conditions in the flow are fixed it is proposed that the following condition be used for determining the transition boundary from stable stratification of a given form to neutral stratification: $RF'^2 = C \leq C_{cr}$, where R and F' are the Reynolds number and Froude

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USSR

NETYUKHAYLO, A. P., et al, Tr. Khar'kov. otd. vod. kh-va prompredpriyatiy VNI
VODGyeO, 1971, No. 9, pp 33-47

density number. Values of C_{cr} are given that determine the boundaries of five different forms (from laminar to turbulent) of the flow in the boundary layer of the separation of liquids of different density. The characteristics of the exchange of momentum through the interface are given on the basis of analysis of graphs of the distribution of total tangential stresses over the thickness of the boundary layer of the separation for the most characteristic forms of the flow in this layer. Certain statements are made concerning the determination of the coefficient of exchange of momentum k as a function of the Richardson number R^* , and the relationship $R^* = sC^{m_1}$ is proposed for calculating this number, where s and m_1 are empirical coefficients. 16 ref. V. B. Dul'nev.

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- 40 -

1/2 012 UNCLASSIFIED PROCESSING DATE--L3NGV70
TITLE--USE OF UREA FOAMED PLASTICS IN MINING -U-
AUTHOR--(03)-MEGRIYENKO, B.A., TELICHKO, K.A., NETREBA, V.I.
COUNTRY OF INFO--USSR
SOURCE--UGOL' UKR. 1970, 141(1), 48-9
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--MINING ENGINEERING, UREA RESIN, FOAM PLASTIC, SEALER

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0073 STEP NO--UR/0605/70/014/001/0048/0049
CIRC ACCESSION NO--AP0125913

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125913

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UREA HCHO RESINS AND AQ. SOLNS. OF AVO-I WERE USED TO SEAL UNSTABILIZED MINING CAVITIES, SHAFTS, ETC. AQ. RESIN SOLN. WAS FOAMED WITH COMPRESSED AIR AND USED TO FILL THE SPACE BETWEEN WOODEN OR METAL PARTITIONS. AFTER HARDENING THE SEALS HAD LOW PERMEABILITY TO AIR, GASES, AND MOISTURE, AND SUFFICIENT ELASTICITY TO ACCOMMODATE THE RELATIVE DISPLACEMENTS OF THE CAVITY SIDES.

UNCLASSIFIED

1/2 018
TITLE--CONTACTLESS WIDE PULSE TEMPERATURE CONTROL FOR THERMOPLASTIC
AUTOMATED HEATING -U-
AUTHOR--(03)-KRUCHENYKH, G.S., MAKAROV, G.A., TELIS, A.I.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVOODSTVO, NO. 2, 1970, PP
20-24
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--THERMOPLASTIC MATERIAL, HEATING, PLASTIC FABRICATION,
AUTOMATIC CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/0266

STEP NO--UR/0182/70/000/002/0020/0024

CIRC ACCESSION NO--AP0100775

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100775

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESSING OF THERMOPLASTIC MATERIALS TAKES PLACE UNDER HEATING, WHERE THE RAW MATERIAL IS PLACED IN A SPECIAL HEATING CYLINDER ON THE OUTSIDE SURFACE OF WHICH ARE DISTRIBUTED ELECTRICAL THERMAL ELEMENTS. THE TEMPERATURE IN THE HEATING ZONE OF THESE CYLINDERS MUST BE CAREFULLY CONTROLLED TO PRODUCE HIGH QUALITY PLASTICS; AN ACCURACY OF PLUS OR MINUS 20 DEGREES C IS NECESSARY. THE AUTHORS PRESENT EXPERIMENTALLY OBTAINED CURVES INDICATING THAT THE PROCESS OF HEATING THE MATERIAL IS AUTOMATIC THERMOPLASTIC MACHINES IS CHARACTERIZED BY INERTIA. THE PRESENT DAY HEATING CONTROL SYSTEM USING A TWO POSITION REGULATOR OF THE "ON,OFF" TYPE IS UNSATISFACTORY BECAUSE OF THE OSCILLATIONS FROM ONE POSITION TO THE OTHER; THESE OSCILLATIONS CANNOT BE REDUCED BECAUSE OF THE INERTIA OF THE SYSTEM. SUCH DEFECTS AS WELL AS THE MORE MINOR ONES TO BE FOUND IN IMPROVED SYSTEMS OF FOREIGN FIRMS, SOME OF WHICH ARE DISCUSSED IN THIS ARTICLE, ARE ELIMINATED IN A SEMICONDUCTOR ELECTRONIC HEATING CONTROL SYSTEM DEVELOPED AND TESTED BY THE UKRAINIAN SCIENTIFIC RESEARCH INSTITUTE FOR MACHINES AND INSTRUMENTS (UKRNIISIP). A BLOCK DIAGRAM, SCHEMATIC, AND LIST OF TECHNICAL SPECIFICATIONS FOR THE INSTRUMENT ARE GIVEN. THOSE WHO PARTICIPATED IN THE DEVELOPMENT AND TESTS WERE E. I. DAVYDOVA, V. I. PERLOVA, AND S. S. OLENDER. A COMPLETE DESCRIPTION OF THE CIRCUIT'S OPERATION IS GIVEN.

UNCLASSIFIED

USSR

UDC: 621.317.78

STRELKOVA, Ye. I., TELITCHENKO, G. P.

"An Installation for Measuring the Reference Value of the Power of Measurement Oscillators in the Decimeter Wave Band in the Pulse-Modulated Mode"

Dokl. Nauchno-tekhn. seminar "Metroi. v radioelektron." Tezisy, Ch. 1 (Reports of the Scientific and Technical Conference on Metrology in Radio Electronics. Summaries, Part 1), Moscow, 1970, pp 61-63 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A194)

Translation: To measure the reference value of the power in the pulse-modulated mode, use is made of comparison with the known power of continuous oscillations modulated to a brief stop. Directional couplers are used for successive transmission of the signal being measured (pulse signal) from the oscillator being checked, and the continuous signal from the auxiliary oscillator to the detector head (through a divider). Further details of measurement and data on the installation are given. Briefly, the characteristics of the installation are: power range of 50-500 mW with a carrier from 400 to 1800 MHz, pulse duration of 0.5-10 msec, and prf of 0.2-10 kHz. E. L.

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TELITCHENKO, L. A.

Life Support Systems

EFFECT EXERCISED ON ERYTHROPOIESIS IN FISH AND RATS BY WATER REGENERATED FROM
HUMAN URINE

50 SPR5 54968
22 Dec 71

50 SPR5 54968

UDC 613.348.81.11.3

[Article by L. A. Telitchenko and N. M. Boychenko; Moscow, Komuchashaya
Biologiya i Meditsina, Vol 5, No 5, 1971, submitted for publica-
tion 10 July 1970, pp 89-90]

Biological and physicochemical methods have been developed for re-
generating water from the water-bearing products of human metabolism.
Physicochemical regeneration yields water which is close in its composi-
tion to distilled water, which is then enriched by a complex of mineral
salts. The biological purification method evidently insures water which
is biologically pure. However, this assumption requires experimental
checking. This led us to trace changes in erythropoiesis in animals drink-
ing water regenerated by different methods of imitating a particular type
of water. We proceeded on the assumption that the overall protective re-
action of the body to exposure to any ecological factor is a change in
erythropoiesis. Its intensification or depression. Under normal condi-
tions a dynamic equilibrium exists in the blood between young and old
erythrocytes. Impairment of this equilibrium indicates a disorder of one
of the important body functions: blood formation. Old erythrocytes are
osmotically less resistant than young ones. Accordingly, impairment in
erythropoiesis can be detected from the change in osmotic resistance of
erythrocytes when a hemolytic is added to them. This is essentially the
acidic erythrogram method (L. I. Gitel'son and I. A. Tereskov, 1957, 1958).

An erythrogram is a graphic representation of the osmotic resistance
of erythrocytes with time. The form of the erythrogram can be used in
determining the number of erythrocytes of different ages at the time of the
investigation. A peculiarity of the erythrogram is an objective photo-
colorimetric registry making it possible to exclude subjective errors in
microscopic methods. The acidic erythrogram method was successfully used
in determining early toxemia in fish (M. N. Telitchenko; B. N. Telitchenko
and R. I. Gorchikova; B. N. Telitchenko and N. P. Gvozdeva).

We also used the acidic erythrogram method in studying fish and
rats. The fish were placed in glass jars with a 15-liter capacity filled

IVANOV, E. V., SHESTERIN, I. S., TAMBIYEV, A. KH., and TELITCHENKO, M. M., Chair of Hydrobiology Moscow State University

"Using a High-Frequency Generator Based on Line Scanning to Study the Luminescence of Biological Objects in a High-Frequency Discharge"

Moscow, Nauchnyye Doklady Vysshey Shkoly. Biologicheskiye, No 1, 1970, pp 117-118

Translation: The method of photography in a high-frequency discharge can be used to determine the physiological state of biological objects. An electron-tube line scanning generator or a relatively simple design was employed in the experiments.

The possibility of photographing biological objects in high-frequency currents was first discovered by the Soviet investigator S. D. Kirlian (1949). the principle that he elaborated for observing the electrical state of living objects offers great promise for describing the behavior of leaves of different plants and human skin (V. Kh. Kirlian and S. D. Kirlian, 1964; V. S. Lysikov et al., 1964) in a high-frequency field, and for studying the primary energy shifts in the action of radiant energy, specifically, laser radiation (V. M. Inyushin, 1967). The same method has been used to study inanimate objects, e.g., to photograph the surfaces of metal ores and rocks

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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vysshey Shkoly. Biologicheskkiye Nauki, No 1, 1970, pp 117-118

(V. I. Mikhalevskiy and G. S. Frantov, 1966).

The method of photography in a high-frequency discharge was used to determine the physiological state of the following biological objects under normal and various experimental conditions: leaves of the flowering plant *Elodea canadensis*, algae of the genus *Chara*, and the crustacean *Daphnia magna*.

The luminescence of living hydrobionts was compared with that of other organisms killed in different ways (fixation with 40% formalin, heating to 40° and 100° C).

The method was valuable in assessing the physiological state of living organisms. The live algae, *Elodea* leaves, and daphnids luminesced differently from killed organisms. Characteristically, the various injurious factors (temperature, fixation with formalin) affected the pattern of luminescence in different ways.

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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshey Shkoly. Biologicheskiye Nauki, No 1, 1970, pp 117-118

In the device described by S. D. Kirlian, a spark generator is used to produce high-frequency currents. V. S. Lysikov et al. (1964) also used a spark generator (in a simplified version) to obtain photographs of leaves from higher plants. We developed and employed an electron-tube line scanner with an original circuit for high-frequency photographing (Fig. 1). Its distinguishing features include a relatively simple design, the possibility of assembling the generator from units and parts produced by Soviet industry, safety and reliability, low weight and small size. The frequency can be smoothly increased from 10 to 120 kHz, the voltage from 0 to 20 kv.

All these advantages, as well as our experience in using the method, lead us to recommend the generator for research on the electrical state of both living and nonliving objects.

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USSR - IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshey Shkoly Discharge." In the collection: O biologicheskoy deystvii monokhromaticheskogo krasnogo sveta (Biological Effects of Monochromatic Red Light). Alma-Ata.

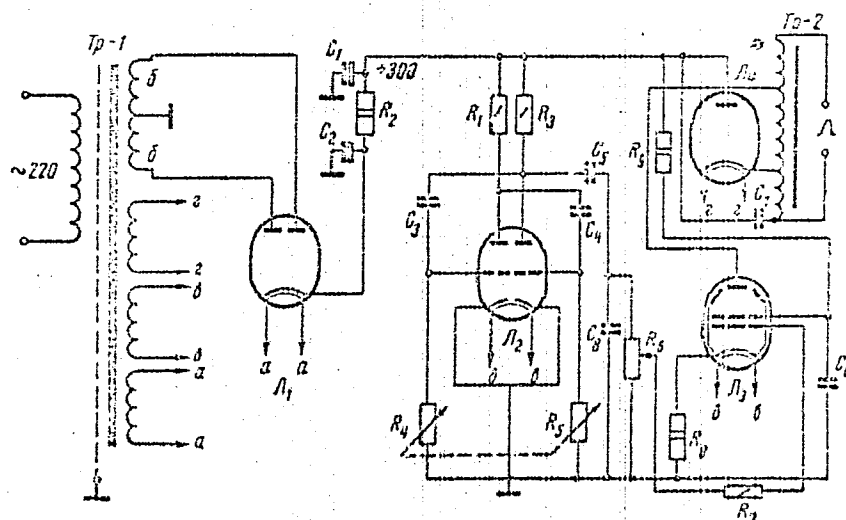
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Mikhalevskiy, V. I. and Frantov, G. S. 1966. "Photographing the Surfaces of Metal Ores With High-Frequency Currents," Shurn. nauchn. i prikladnoy fotografii i kinematografii (Journal of Scientific and Applied Photography and Cinematography). Vol 2, No 5

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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshey Shkoly.
Biologicheskkiye Nauki, No 1, 1970, pp 117-118



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IVANOV, E. V., et al., Moscow, Nauchnyye Doklady Vusshey Shkoly. Biologicheskoye Nauki, No 1, 1970, pp 117-118

Рис. 1. Схема высокочастотного генератора на базе строчной развертки. C_1, C_2 — 40 мкФ X 450 в; C_3, C_4 — 50 пФ; C_5 — 0,025 мкФ; C_6 — 0,5 мкФ; C_7 — 0,05 мкФ; C_8 — 300 пФ; $C_9, C_{10}, C_{11}, C_{12}, C_{13}, C_{14}$ — рабочее напряжение 500 в; R_1 — 1 кОм; R_2 — 20 кОм; R_3 — 390 кОм; R_4 — 390 кОм; R_5 — 390 кОм; R_6 — 1,5 МОм; R_7 — 300 Ом; R_8 — 200 Ом; R_9 — 10 кОм; L_1 — 5П13С; L_2 — 6Н8С; L_3 — 6П13С; L_4 — 6П10П; Тр-1 — силовой трансформатор; Тр-2 — высокочастотный выходной трансформатор

Fig. 1. Circuit of a high-frequency generator based on line scanning. C_1, C_2 - 40 microfarads X 500 v; C_3, C_4 - 50 picofarads; C_5 - 0.025 microfarads; C_6 - 0.5 microfarad; C_7 - 0.05; C_8 - 300 picofarads; $C_9, C_{10}, C_{11}, C_{12}, C_{13}, C_{14}$ - working voltage 500 v; R_1 - kilohm; R_2 - kilohms; R_3 - 390 kilohms; R_4 - 390 kilohms; R_5 - 390 kilohms; R_6 - 1.5 megohms; R_7 - 300 ohms; R_8 - 200 ohms; R_9 - 10 kilohms; L_1 - 5Ts3S; L_2 - 6N3S; L_3 - 6P13S; L_4 - 6P10P; Тр-1 power transformer; Тр-2 - high-frequency output transformer

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USSR

UDC: 681.335.7

TELITSYN, A. M.

"A Device for Differentiating Pulse Repetition Frequency"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrastzy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331384, Division G, filed 3 Jul 70, published 7 Feb 72, p 151

Translation: This Author's Certificate introduces a device for differentiating pulse repetition frequency. The device contains a doubling circuit, a counter, a pulse shift indicator, a control circuit, a strobe shaping counter and a decoder. As a distinguishing feature of the patent, the circuit is simplified and reliability is improved by connecting the outputs of the doubling circuit through the counter and through a series circuit comprised of the control circuit, the strobe shaping counter and the decoder to the inputs of the pulse shift indicator whose outputs are connected to the output terminals of the device.

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USSR

UDC 681.325.3

TELITSYN, A. M.

"Frequency-to-Digital Code Converter"

USSR Author's Certificate No 272689, Filed 11/01/69, Published 20/08/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i
Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B484P)

Translation: A frequency-to-digital code converter is known, containing measured and standard frequency sources, a standard frequency divider, flip-flops, and tubes. It is a pulse frequency servo system with feedback, including a discriminator for the repetition frequencies of input pulses and feedback pulses, a reversing frequency difference pulse counter, and a digital code-to-frequency converter in the feedback circuit. The results of coding in the reversing counter express the instantaneous value of the frequency and can be read out at any moment in time. The defects of such a device include the nonlinear relation between the result of coding (number in the reversing counter) and input signal frequency, the relatively long time of the transient process -- which hinders use of the device with rapid frequency changes -- and the unavoidable natural oscillations of the steady-state value within limits of ± 1 in the low-order digit. The purpose of the

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TELITSYN, A. M., USSR Author's Certificate No 272689, Filed 11/01/69,
Published 20/08/70 (Translated from Referativnyy Zhurnal Avtomatika,
Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B484P)

invention is to increase the accuracy and speed of the converter. To do this, the source of the measured frequency is connected to the ones input of the first flip-flop and the pulse input of the tube controlled by this flip-flop. The output of the tube is connected to the ones input of the second flip-flop and the pulse input of the tube controlled by this flip-flop. The 0 output of the second flip-flop is connected to the controlled input of the tube, the pulse input of which is connected to the measured frequency source. The output of this tube is connected to the output of the tube controlled by the second flip-flop. The output of the standard frequency divider is connected to the 0 input of the first flip-flop and the pulse input of a tube, the control input of which is connected to the 0 output of the first flip-flop, while the output of this tube is connected to the 0 input of the second flip-flop. 2 figs.

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1/2 021
UNCLASSIFIED
TITLE--ON RESECTION OF THE LIVER AND REMOVAL OF A FIBROUS CAPSULE WITH THE
USE OF AN OCTO II FORM SUTURE AND LARGE CLIPS -U-
AUTHOR--TELKOV, N.A.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, PP
55-59
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIVER, SURGERY, SUTURE, CANCER, METASTASIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0034
STEP NO--UR/0589/70/104/004/0055/0059
CIRC ACCESSION NO--AP0105133
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105133

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR'S EXPERIENCE WITH SURGICAL TREATMENT OF 88 PATIENTS FOR ALVEOLAR OR HYDATID (MULTICYST) ECHINOCOCCUS, CANCER OF THE GALL BLADDER PENETRATING INTO THE HEPATIC PARENCHYMA, CANCER METASTASES IN THE LIVER, ETC. IS REPORTED. FOR RESECTION OF THE LIVER (DISSECTION OF A FIBROUS CAPSULE) LARGE CLIPS AND AN OCTO N FORM SUTURE WERE EMPLOYED.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DOSE FIELD CREATED BY PROTON BEAM IN THE IRRADIATED BODY -U-
AUTHOR--(05)-VAYNBERG, M.SH., DMITRIYEVSKIY, I.M., SEMENOV, YU.V., TELKOV,
YU.M., FROLOV, V.V.
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 69-73
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MEDICAL APPARATUS, PROTON RADIATION BIOLOGIC EFFECT, RADIATION
DOSAGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1959 STEP NO--UR/0241/70/015/005/0069/0073
CIRC ACCESSION NO--AP0120602
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120602

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE METHOD OF CALCULATION OF DOSE FIELDS CREATED IN THE IRRADIATED BODY BY A MEDICAL PROTON BEAM OF THE LABORATORY OF NUCLEAR PROBLEMS OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH IS DISCUSSED. THE RESULTS OF THE EXPERIMENT CONCERNED WITH THE DETERMINATION OF THE INFLUENCE ON THE DOSE FIELD OF HETEROGENEITIES AND CURVATURE OF THE BODY SURFACE ARE GIVEN. FACILITY: OTDEL RADIOLOGII INSTITUTA EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AMN SSSR. FACILITY: MOSKOVSKIY INZHENERNO-FIZICHESKIY INSTITUT.

UNCLASSIFIED

USSR

UDC 546.185:547.245

~~TELKOVA, I. B.~~, KIREYEV, V. V., KORSHAK, V. V., VOLODIN, A. A.,
and FOMIN, A. A.

"Synthesis and Study of Arylhydroxycyclotriphosphazotrienes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, (105), No 6, Jun 73,
pp 1157-1161

Abstract: Pentaarylhydroxychlorocyclotriphosphazotrienes and
hexaarylhydroxycyclotriphosphazotrienes were synthesized by the
reaction of the respective sodium phenoxides with hexachlorocyclo-
triphosphazotriene in acetone or tetrahydrofuran. The structures
of all derivatives obtained were supported by IR, UV and NMR³¹p
spectra.

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USSR

CHERNYAUSKAS, V.-A. Yu., TEL'KSNIS, A.-L. A., SRUOGIS, Yu.-V. K.

"Device for Determination of Changes in the Properties of a Random Signal"

Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972,
Patent No 355617.

Translation: A device for determination of changes in the properties of a random signal at the output of systems such as oscillating circuits, containing an analog-digital convertor, a shift register, a squaring circuit, adders, multipliers, circuits for calculation of the logarithm of the product of determinants, a control unit, memory register and unit for calculation of the maximum, differing in that in order to increase the accuracy and resolving capacity of the moment of time of change of correlation properties of a random signal, the output of the analog-digital convertor is connected to the input of the shift register; the output of the next to last location in the shift register is connected to the input of the first location and through a squaring circuit, the first adder and the first multiplier, to the first input of the second adder, the second input of which is connected through the second multiplier, the third adder, the second squaring circuit and the fourth adder to the outputs of the next to last and third from last locations of the shift registers; the third input of the second adder is connected through the

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CHERNYAUSKAS, V.-A. Yu., TEL'KSNIS, A.-L. A., SRUOGIS, Yu.-V. K., Otkrytiya Izobreteniya Promyshlennyye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355617.

third multiplier, the fifth adder, the third squaring circuit and the sixth adder to the outputs of the three last locations of the shift register; the fourth input of the second adder is connected to the output of the circuit for calculation of the logarithm of the products of the determinants, the input of which is connected to the output of the control unit, the other outputs of which are connected to the shift register, memory register and inputs of the first, third and fifth adders respectively, while the output of the second adder is connected to the input of the memory register, the outputs of which are connected to the corresponding inputs of the circuit for calculation of the maximum.

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